भारतीय मानक

Indian Standard

IS 18246 : 2023

तैयार इडली बैटर — विशिष्टि

Ready *Idli* Batter — Specification

ICS 67.060

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भारतीय मानक ब्यूरो
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May 2023 **Price Group 7**

Ready-to-Eat Food and Specialized Products Sectional Committee, FAD 24

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Ready-to-Eat Foods and Specialized Products Sectional Committee had been approved by the Food and Agriculture Division Council

Idli is a very popular fermented breakfast item in India. The traditional method of making the *idli* batter consists of grinding of water-soaked parboiled rice and decuticled black gram dal (usually in the proportion 4 : 1 to 5 : 1 by mass) to a paste using a wet grinder and keeping the resultant product overnight or longer to ferment depending on the prevailing atmospheric temperature. Indian spices and condiments may be added as an optional ingredient. The batter is later steamed in moulds, which gives the conventional shape to *idli*.

Considerable labour is involved in making the *idli* batter by traditional method. The use of ready *idli* batter dispenses with the laborious grinding process and therefore it is gaining popularity. It was, therefore, considered desirable to formulate an Indian Standard on specification for the ready to use *idli* batter so that batter of the right quality would be available to consumers. This standard is expected to help in exercising necessary quality control in the manufacture of good quality ready to use *idli* batter under hygienic conditions.

In the formulation of this standard, due consideration has been given to the provisions of the *Food Safety and Standards Act,* 2006 and the rules and the *Legal Metrology* (*Packaged Commodities*) *Rules*, 2011. However, this standard is subject to the restrictions imposed under these, wherever applicable.

The composition of the committee responsible for the formulation of this standard is listed in Annex H.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

READY *IDLI* BATTER — SPECIFICATION

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for ready to use *idli* batter.

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards listed in Annex A.

3 TERMINOLOGY

For the purpose of this standard, following definitions shall apply:

3.1 *Idli* Batter — *Idli* batter shall mean ready to use fermented batter containing soaked parboiled rice or raw milled rice or rice *suji*, and soaked decuticled or dehusked black gram or chick pea or green gram in the form of a viscous liquid with added optional ingredients, and fermented either naturally or by adding curd/whey/food grade bacteria and/or yeast culture, intended to be used for preparation of *idli*.

3.2 Fermented Batter — Fermented batter is made through desired microbial and enzymatic conversion and activation of food components under controlled conditions.

4 REQUIREMENTS

4.1 Description

Idli batter shall be in the form of a white to off-white fermented paste, free from rancidity, musty or other objectionable odour and flavour. *Idli* batter shall be free from added colours and flavours. *Idli* batter shall be free from dirt and any extraneous matter.

4.2 Ingredients

4.2.1 *Mandatory Ingredients*

Idli batter shall be made from the following ingredients:

a) *Rice paste* — Rice paste shall be prepared from soaked parboiled rice/raw milled rice ground to paste of desired consistency;
b) *Dal paste* — *Dal* (pulse) paste shall be made from soaked decuticled/dehusked black gram/chick pea/green gram *dal*, singly or in combination, and ground to fine paste of desired consistency; and
c) *Potable water* — Conforming to IS 10500.

4.2.2 *Optional Ingredients*

Idli batter may also contain following ingredients:

a) Edible salt – Conforming to IS 7224;
b) Other cereals including millets, pulses and legumes;
c) Edible vegetable oil and fats or their products;
d) Spices and condiments;
e) Dehydrated vegetables;
f) Dried coconut products;
g) Nuts; and
h) Oilseeds.

4.2.3 All ingredients shall be food grade, free from dirt, extraneous matter and insect infestation.

4.3 Food Additives

Idli batter may contain permitted food additives and at levels as specified in *Food Safety and Standards* (*Food Products Standards and Food Additives*) *Regulations,* 2011

4.4 Processing

Idli batter is made by grinding the soaked parboiled rice/ raw milled rice and soaked decuticled/dehusked black gram/chick pea/ green gram *dal* (*see* **4.2.1**) either separately or in combination, in a wet grinder to obtain particles of the appropriate sizes. These pastes should be then mixed with the other optional ingredients in appropriate quantities and keeping the resultant product for desired time period to ferment in a controlled condition to achieve the desired *p*H. No further fermentation of *idli* batter should be required at the time of *idli* preparation.

4.5 The *p*H of *idli* batter shall be in the range of 5.4 to 5.8.

4.6 *Idli* batter shall be manufactured and packed in premises maintained in hygienic conditions (*see* IS 2491).

4.7 *Idli* batter shall comply with the requirements given in Table 1 and Table 2.

4.8 The metal contaminants and other toxic substances, if any, in the product shall not exceed the limits specified in Table 3.

4.9 The pesticide residues, if any, in the product shall not exceed the limits as prescribed in the *Food Safety and Standards* (*Contaminants, Toxins and Residues*) *Regulations,* 2011.

5 PACKAGING

5.1 *Idli* batter shall be packed in flexible thermoplastic films of multilayer construction, or their laminates with paper so as to provide high resistance to the passage of oxygen and to produce an effective heat seal. The plastic used in packaging of product should comply with IS 10171. The sealing shall be done hermetically with or without nitrogen flushing to retain the contents in a fresh condition. The packaging material shall be food grade non-reactive, non-transparent, water-resistant, and impermeable to carbon dioxide and other gases.

5.2 The packed product shall be kept under refrigerated conditions (8 °C or below) till usage.

6 MARKING

6.1 Each container shall be legibly and indelibly marked so as to give the following information:

a) Name of the material;
b) Name and address of the packer/manufacturer;
c) Date of packing;
d) Lot/batch number;
e) Net quantity;
f) Date before which the contents should be consumed be indicated by marking the words ‘Use by date /expiry date …………(DD/MM/YY)’
g) Storage instructions (including use by date after opening the package);
h) Directions for use; and
j) Any other information required under the *Legal Metrology* (*Packaged Commodities*) *Rules*, 2011 and *Food Safety and Standards* (*Labelling and Display*) *Regulations,* 2020.

6.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

7 SAMPLING

Representative samples of the material shall be drawn and the conformity of the material to the requirements of the specification shall be determined according to the procedure given in Annex G.

8 TESTS

8.1 Tests shall be carried out in accordance with co1 (4) of Table 1, Table 2 and Table 3.

8.2 Quality of Reagents

Unless specified otherwise, chemicals of analytical grade shall be employed in tests and distilled water (*see* IS 1070) shall be used where the use of water as a reagent is intended.

Table 1 Physico-Chemical Requirements for *Idli* Batter
(*Clause* 4.7)

Sl No.	Characteristics	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Moisture, percent by mass, *Max*	65.0	Annex B
ii)	Titrable acidity, percent by mass	0.2 - 0.7	IS 13844
iii)	Total ash, percent dry basis, *Max*	2.0	Annex C
iv)	Acid insoluble ash, percent by mass (dry basis), *Max*	0.15	Annex D
v)	Total protein, percent by mass (dry basis), (N × 6.25), *Min*	12.0	Annex E
vi)	Total Fat, percent by mass (dry basis), *Max*	2.0	IS 11721
vii)	Dietary fibre, percent by mass (dry basis), *Min*	1.0	IS 11062
viii)	Carbohydrates, percent by mass (dry basis), *Max*	85.0	(*see* Note)

NOTE — The carbohydrate content shall be calculated by difference, that is, 100 – [percent of protein (dry basis) + percent of fat (dry basis) + percent of total ash (dry basis) + percent of dietary fibre (dry basis)].

Table 2 Microbiological Requirements for *Idli* Batter
(*Clause* 4.7)

Sl No.	Characteristic	Requirement				Method of Test, Ref to[2)]
		Sampling Plan[1)]		Limit (cfu)		
		n	***c***	***m***	***M***	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	*Staphylococcus aureus* count (cfu/g)	5	2	10^2	10^3	IS 5887 (Part 8/Sec 1* or 2)
ii)	*Enterobacteriaceae* count (cfu/g)	5	2	10^2	10^3	IS 17112 (Part 2)

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1) For sampling plan *see* Annex F.

2) In case of any dispute, the method indicated by '*' shall be the referee method.

Table 3 Limits of Metal Contaminants and Other Toxic Substances
(*Clause* 4.8)

Sl No.	Parameters	Limit	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Lead, mg/kg, *Max*	0.1	IS 12074 or AOAC 2015.01*
ii)	Cadmium, mg/kg, *Max*	0.05	**15** of IS 1699 or AOAC 2015.01*
iii)	Total aflatoxin, µg/kg, *Max*	5.0	IS 16287

NOTE — In case of any dispute, the method indicated by '*' shall be the referee method.

ANNEX A
(*Clause* 2)

LIST OF REFERRED STANDARDS

IS No.	*Title*
IS 265 : 2021	Hydrochloric acid — Specification (*fifth revision*)
IS 460 (Part 1) : 2020	Test sieves — Specification: Part 1 Wire cloth test sieves (*fourth revision*)
IS 1070 : 1992	Reagent grade water — Specification (*third revision*)
IS 1699 : 1995	Methods of sampling and test for food colours (*second revision*)
IS 2491 : 2013	Food hygiene — General principles — Code of practice (*third revision*)
IS 4905 : 2015/ISO 24153 : 2009	Random sampling and randomization procedures (*first revision*)
IS 5887	Methods for detection of bacteria responsible for food poisoning:
(Part 8/Sec 1) : 2002/ISO 6888-1 : 1999	Horizontal method for enumeration of coagulase-positive *staphylococci* (*staphylococcus aureus* and other species), Section 1 Technique using baird - parker agar medium
(Part 8/Sec 2) : 2002/ISO 6888-2:1999	Horizontal method for enumeration of coagulase-Positive *staphylococci* (*staphylococcus aureus* and other species), Section 2 Technique using rabbit plasma fibrinogen agar medium
IS 7224 : 2006	Iodized salt, vacuum evaporated iodized salt and refined iodized salt — Specification (*second revision*)
IS 10171 : 1999	Guide on suitability of plastics for food packaging (*second revision*)
IS 10500 : 2012	Drinking Water — Specification (*second revision*)
IS 11062 : 2019	Method for estimation of total dietary fibre in foodstuffs (*first revision*)
IS 11721 : 2013/ISO 1736 : 2008	Dried milk and dried milk products — Determination of fat content — Gravimetric method (Reference Method) (*second revision*)
IS 12074 : 1987	Method for determination of lead by atomic absorption spectrophotometer
IS 13186 : 1991	Citric acid, food grade — Specification
IS 13844 : 2003/ISO 750 : 1998	Fruit and vegetable products — Determination of titratable acidity (*first revision*)
IS 16287 : 2015/ISO 16050 : 2003	Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products — High-performance liquid chromatographic method
IS 17112 (Part 2) : 2019/ISO 21528-2 : 2017	Microbiology of the food chain — Horizontal method for the detection and enumeration of *enterobacteriaceae*: Part 2 Colony-count technique

ANNEX B

[*Table* 1, *Sl No.* (i)]

DETERMINATION OF MOISTURE

B-1 PROCEDURE

Weigh accurately about 20 g of the batter sample in a dish made of aluminium or silica; previously dried in hot air-oven and weighed. Place the dish in hot air-oven and maintain the temperature at (105 ± 2) °C for five hours. Cool the dish in a desiccator and weigh. Place the dish again at (105 ± 2) °C in the hot air-oven for 30 minutes. Cool the dish in the desiccator and again weigh. Repeat this process of heating (30 minutes), cooling and weighing till the difference in the mass between two successive weighings are less than one milligram. Note the lowest mass.

NOTE — Preserve the dish containing this dried material for determination of total ash (*see* **D-l**), if the dish is made up of silica.

B-2 CALCULATION

$$\text{Moisture, percent by mass} = \frac{100\,(M_1-M_2)}{M_1-M}$$

where

M_1 = mass, in g, of the dish with material before drying;
M_2 = mass, in g, of the dish with material after drying; and
M = mass, in g, of the empty dish.

ANNEX C

[*Table* 1, *Sl No.* (iii)]

DETERMINATION OF TOTAL ASH

C-1 PROCEDURE

Ignite the weighed amount of batter sample in the dish on hot plate for about one hour or till smoke free. Then, place the dish in a muffle furnace at (600 ± 20) °C for 5 to 6 hours or until grey ash results. Let crucible cool in muffle furnace followed by further cooling in desiccator (if required) and weigh. Note the mass.

NOTE — Preserve the dish containing this ash for the determination of acid insoluble ash (*see* **D-2**).

C-2 CALCULATION

$$\text{Total ash, percent by mass (dry basis)} = \frac{100\,(M_2-M)}{M_1-M}$$

where

M_2 = mass, in g, of the dish with ash;
M = mass, in g, of the empty dish (*see* M in **B-2**); and
M_1 = mass, in g, of the dish with dried material taken for the test (*see* M_2 in **B-2**).

ANNEX D

[*Table* 1, *Sl No.* (iv)]

DETERMINATION OF ACID INSOLUBLE ASH

D-1 REAGENT

D-1.1 Dilute Hydrochloric Acid — Approximately 5 N, prepared from concentrated hydrochloric acid (*see* IS 265).

D-2 PROCEDURE

To the ash contained in the dish (*see* **C-1**), add 25 ml of dilute hydrochloric acid (**D-1.1**), cover with a watch-glass and heat on a water bath for 10 minutes. Allow to cool and filter the contents of the dish through a Whatman filter paper No. 42 or its equivalent. Wash the filter paper with water until the washings are free from acid and return it to the dish. Keep it in an hot air-oven and maintain the temperature at (105 ± 2) °C for about 3 hours. Ignite in a muffle furnace at (600 ± 20) °C for one hour. Let crucible cool in muffle furnace followed by further cooling in desiccator (if required) and weigh. Note the mass.

D-3 CALCULATION

Total insoluble ash, percent by mass (dry basis)

$$= \frac{100\,(M_2-M)}{M_1-M}$$

where

M_2 = mass, in g, of the dish with acid insoluble ash;
M = mass, in g, of the empty dish (*see* M in **B-2**); and
M_1 = mass, in g, of the dish with dried material (*see* M_2 in **B-2**).

ANNEX E

[*Table* 1, *Sl No.* (v)]

DETERMINATION OF TOTAL PROTEIN

E-1 APPARATUS

E-1.1 The assembly consists of a round-bottom flask of 1 000 ml capacity fitted with a rubber stopper through which passes one end of the connecting bulb tube B. The other end of the bulb tube B is connected to the condenser C which is attached by means of a rubber tube to a dip tube D which dips into a known quantity of standard sulphuric acid contained in a beaker E of 250 ml capacity.

E-1.2 Kjeldahl Flask — of capacity 500 ml

E-2 REAGENTS

E-2.1 Anhydrous Sodium Sulphate

E-2.2 Copper Sulphate

E-2.3 Concentrated Sulphuric Acid — specific gravity 1.84

E-2.4 Sodium Hydroxide Solution — Dissolve about 225 g of sodium hydroxide in 500 ml of water.

E-2.5 Standard Sulphuric Acid — 0.1 N

E-2.6 Methyl Red Indicator Solution — Dissolve one gram of methyl red in 200 ml of rectified spirit (95 percent by volume).

E-2.7 Standard Sodium Hydroxide Solution — 0.1 N

E-3 PROCEDURE

E-3.1 Take 2g of batter sample, accurately weighed, to the Kjeldahl flask, taking precautions to see that the particles of the material do not stick on to the neck of the flask. Add about 10 g of anhydrous sodium sulphate, about 0.2 g to 0.3 g of copper sulphate and 20 ml of concentrated sulphuric acid. Place the flask in an inclined position. Heat below the boiling point of the acid until frothing ceases. Increase heat until the acid boils vigorously and digest for 30 minutes after the mixture becomes clear and pale-green or colourless. Cool the contents of the flask.

Transfer quantitatively to the round-bottom flask with water, the total quantity of water used to be about 200 ml. Add while shaking, a few pieces of pumice stone to prevent bumping. Add about 50 ml of sodium hydroxide solution (which is sufficient to make the solution alkaline) carefully through the side of the flask so that it does not mix at once with the acid solution but forms a layer below the acid layer. Assemble the apparatus for distillation, taking care that the dip tube extends below the surface or the standard sulphuric acid contained in the beaker. Mix the contents of the flask by shaking and distil until all ammonia has passed over into standard sulphuric acid. Shut the burner off and immediately detach the flask from the condenser. Wash the dip tube carefully so that all traces of the condenser are transferred to the beaker. When all the washings have drained into the beaker, add two or three drops of methyl red indicator solution and titrate with standard sodium hydroxide solution.

E-3.2 Carry out a blank determination using all reagents in the same quantities but without the material to be tested.

E-4 CALCULATION

Total protein, percent by mass (dry basis) = $\frac{875\,(\mathrm{B}-\mathrm{A})N}{\mathrm{M}(100-\mathrm{m})}$

where

B = volume, in ml, of standard sodium hydroxide solution used to neutralize the acid in the blank determination;

A = volume, in ml, of standard sodium hydroxide solution used to neutralize the excess of acid in the test with the material;

N = Normality of standard sodium hydroxide solution;

M = mass, in g, of the material taken for the test; and

m = moisture, percent by mass, in the material (*see* **B-2**).

ANNEX F

(*Table* 2)

SAMPLING PLAN FOR MICROBIOLOGICAL REQUIREMENTS

F-1 SAMPLING PLAN FOR MICROBIOLOGICAL REQUIREMENTS

The terms *n*, *c*, *m* and *M* used in this standard have the following meaning:

n = Number of units comprising a sample;

c = Maximum allowable number of units having microbiological counts above m for 2- class sampling plan and between m and M for 3- class sampling plan;

m = Microbiological limit that separates unsatisfactory from satisfactory in a 2- class sampling plan or acceptable from satisfactory in a 3-class sampling plan; and

M = Microbiological limit that separates unsatisfactory from satisfactory in a 3-class sampling plan.

F-2 INTERPRETATION OF RESULTS

2-Class Sampling Plan (where n, c and m are specified)	*3-Class Sampling Plan (where n, c, m and M are specified)*
1) Satisfactory, if all the values observed are ≤ *m*	1) Satisfactory, if all the values observed are ≤ *m*
2) Unsatisfactory, if one or more of the values observed are > *m* or more than *c* values are > *m*	2) Acceptable, if a maximum of c values are between *m* and *M* and the rest of the values are observed as ≤ *m*
	3) Unsatisfactory, if one or more of the values observed are > *M* or more than c values are > *m*

ANNEX G

(*Clause* 7)

SAMPLING OF IDLI BATTER

G-1 GENERAL REQUIREMENTS OF SAMPLING

In drawing, preparing, storing and handling samples, the following precautions and directions shall be observed.

G-1.1 Sampling shall be taken in a protected place not exposed to damp air, dust or soot.

G-1.2 The sampling instrument shall be clean and dry when used.

G-1.3 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

G-1.4 The samples shall be placed in clean and dry tin containers. The sample containers shall be of such a size that they are almost completely filled by the sample.

G-1.5 Each container shall be sealed airtight after filling and shall be marked with full details of sampling, date of sampling, batch or code number, name of manufacturer and other important particulars of the consignment.

G-1.6 Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the suggested temperature of storage and packaging.

G-1.7 Sampling shall be done by a person agreed to between the purchaser and the supplier and in the presence of the purchaser (or his representative) and the supplier (or his representative).

G-2 SCALE AND SAMPLING

G-2.1 Lot

All the containers in a single consignment belonging to the same batch of manufacture shall constitute a lot. If a consignment is declared to consist of different batches of manufacture, the containers of the same batch shall be grouped together and each such group shall constitute a separate lot.

G-2.1.1 Samples shall be tested from each lot separately for ascertaining conformity of the material to the requirements of the specification.

G-2.2 The number of containers to be tested from a lot shall depend on the size of the lot and shall be in accordance with Table 4.

G-2.3 These containers shall be chosen at random from the lot. In order to ensure the randomness of selection, procedure given in IS 4905 may be followed.

Table 4 Number of Containers to be Selected for Sampling

(*Clause* G-2.2)

Sl No. (1)	Lot Size *N* (2)	Sample Size *N* (3)
i)	3 to 50	3
ii)	51 to 100	4
iii)	101 to 300	5
iv)	301 to 500	6
v)	501 to 1 000	7
vi)	1 001 and above	8

G-3 TEST SAMPLES AND REFEREE SAMPLES

G-3.1 Draw with a suitable sampling instrument, small portions of the material from different parts of each container selected according to **G-2.3**. The total quantity of material drawn from each container shall be sufficient to make triplicate determinations for all the characteristics given in the specification.

G-3.2 Mix all portions of materials drawn from the same container thoroughly. Out of this mixture, a small but approximately equal quantity of material shall be taken from each selected container and shall be well mixed so as to form a composite sample weighing about 500 g. This composite sample shall be divided into three equal parts, one for the purchaser, another for the vendor and the third for the referee. Each of these parts shall be transferred to thoroughly clean and dry sample containers which shall be sealed airtight and labelled with full identification particulars given in **G-1.5**.

G-3.3 The remaining portions of the material from each selected container (after a small quantity needed for the composite sample has been taken) shall be divided into three equal parts, each of which shall weigh not less than 100 g. These parts shall be transferred to thoroughly clean and dry sample containers which shall be sealed airtight labelled with full identification particulars given in **G-1.5**. The material in each such container shall constitute an individual test sample. These individual test samples shall be separated into three identical sets of test samples in such a way that each set has a test sample representing each container selected according to **G-2.2**.

G-3.4 Referee Sample

The referee sample shall consist of a set of individual samples (**G-3.3**) and the composite sample (**G-3.2**) marked for this purpose and shall bear the seals of the purchaser and the supplier. These shall be kept at a place agreed to between the purchaser and the supplier and shall be used in case of dispute between the two.

G-4 NUMBER OF TESTS

G-4.1 Tests for determination of acid insoluble ash, and total protein content shall be conducted on each of the individual samples constituting the set of test samples (*see* **G-3.3**).

G-4.2 Tests for the remaining characteristics, namely, moisture, dietary fibre, total fat and crude fibre shall be conducted on the composite sample (*see* **G-3.2**).

G-5 CRITERIA FOR CONFORMITY

G-5.1 For Individual Samples

The lot shall be declared to satisfy the requirements of acid insoluble ash, total ash and total proteins content if each of the test results satisfy the corresponding requirement given in Table 1.

G-5.2 For Composite Samples

The test results on the composite samples shall meet the corresponding requirements specified in Table 1, Table 2 and Table 3.

ANNEX H

(*Foreword*)

COMMITTEE COMPOSITION

Ready-to-Eat Food and Specialized Products Sectional Committee, FAD 24

Organization	*Representative*(*s*)
National Institute of Food Technology Entrepreneurship and Management, Sonipat	Dr Ashutosh Upadhyay (***Chairperson***)
Agricultural & Processed Food Products Export Development Authority (APEDA), New Delhi	Dr Reeba Abraham
All India Food Processors Association, New Delhi	Dr Vaibhav Kulkarni Dr A. K. Tyagi (*Alternate*)
Central Food Technological Research Institute, Mysore	Dr P. Prabhasankar Dr Jyothi Lakshmi (*Alternate*)
CONCERT, Chennai	Ms Nirmala Desikan Ms R. Kalyani (*Alternate*)
Confederation of Indian Food Trade & Industry, New Delhi	Dr Jasvir Singh Ms Varsha Yadav (*Alternate*)
Consumer Voice, New Delhi	Shri M.A.U Khan
CSIR - Indian Institute of Toxicology Research, Lucknow	Dr Kausar M. Ansari Dr Sandeep Sharma (*Alternate*)
Defense Food Research Laboratory, Mysore	Dr R. Kumar Dr R. Shylaja (*Alternate*)
Food Safety & Standards Authority of India, New Delhi	Ms Ruby Mishra
Haldiram Snacks Pvt Ltd, Noida	Shri Ravi Mehta
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ICAR-National Dairy Research Institute, Karnal	Dr P. Narendra Raju Dr Neelam Upadhyay (*Alternate*)
ICMR-National Institute of Nutrition, Hyderabad	Dr K.V. Radhakrishna Dr V. Sundershan Rao (*Alternate*)
Indian Confectionery Manufacturer Association, Noida	Shri Prabhakar Misra
Indian Institute of Packaging, Mumbai	Dr Tanweer Alam Shri Pon Kumar (*Alternate*)
Indian Institute of Technology, Kharagpur	Dr H. N. Mishra
McCain Foods (India) Pvt Ltd, New Delhi	Ms Tinu Sharma Shri Vikas Kaushik (*Alternate*)

Organization	*Representative*(*s*)
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National Institute of Technology, Rourkela	Shrimati Rachana Sehrawat Dr Mohd Khalid Gul (*Alternate*)
Nestle India Ltd, Gurgaon	Shri Iswarya Mani
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Sant Longowal Institute of Engineering and Technology, Longowal	Shri Kamlesh Prasad Shri Pradyuman Kumar (*Alternate*)
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Member Secretary
Ms Lavika Singh
Scientist 'B'/Assistant Director
(Food and Agriculture), BIS

Panel for Ready-to-Eat Batters & Mixes, FAD 24/Panel III

Organization	*Representative*(*s*)
ICAR-Central Institute of Post Harvest Engineering & Technology (CIPHET), Ludhiana	Dr Mridula Devi **(*Convenor*)**
All India Food Processors Association, New Delhi	Dr K. K. Joshi Dr Madhusmita Sahoo (*Alternate*)
Foodchain ID India, Mumbai	Dr Chinmayee Deulgaonkar
Guru Angad Dev Veterinary & Animal Sciences University, Ludhiana	Dr Sunil Kumar Khatkar
Haldiram Snacks Pvt Ltd, Noida	Shri Ravi Mehta
Shiva Analyticals India Pvt Ltd , Karnataka	Shri S. Mallikarjuna Rao
Sri Ramaswami Memorial University, Chennai	Dr P. Gurumoorthi

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This Indian Standard has been developed from Doc No.: FAD 24 (19679).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

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